

#13/B
7/29/04
JB

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method comprising:

~~maintaining a state of a cache line having contents;~~

in response to a request from a requesting node of a plurality of caching

nodes a second node to access the contents of a cache line,

determining that a responding node of the plurality of caching

nodes has exclusive ownership of the contents;

determining if a whether the state of the cache line is an ambiguous state,

the state of the cache line maintained at a snoop filter; and

if the state is an ambiguous state, resolving the ambiguous state by

determining if the contents have been modified, and writing one of

the contents and the modified contents to the requesting node.

2. – 26. (Canceled)

27. (New) The method of claim 1, wherein the snoop filter additionally maintains a presence vector having one bit for each of the plurality of caching nodes, the presence vector to indicate that a given caching node of the plurality of caching nodes has a copy of the contents.

28. (New) The method of claim 27, wherein said determining that a responding node of the plurality of caching nodes has exclusive ownership of the contents comprises accessing the snoop filter to check the

presence vector and the state of the cache line.

29. (New) The method of claim 1, wherein the current status of the cache line is maintained at the responding node, and said determining if the contents have been modified comprises snooping the responding node for a current status of the cache line.

30. (New) The method of claim 1, wherein the contents of the cache line are permanently stored at a home node of the plurality of caching nodes, the method additionally comprising writing the modified contents to the home node if the contents have been modified.

31. (New) The method of claim 1, wherein each of the plurality of caching nodes implements a Modified, Exclusive, Shared and Invalid (MESI) protocol.

32. (New) A machine-readable medium having stored thereon instructions, the instructions when executed by a machine, result in the following:

in response to a request from a requesting node of a plurality of caching nodes to access contents of a cache line, determining that a responding node of the plurality of caching nodes has exclusive ownership of the contents;

determining if a state of the cache line is an ambiguous state, the state of the cache line maintained at a snoop filter; and

if the state is an ambiguous state, resolving the ambiguous state by

determining if the contents have been modified, and writing one of the contents and the modified contents to the requesting node.

33. (New) The machine-readable medium of claim 32, wherein the snoop filter additionally maintains a presence vector having one bit for each of the plurality of caching nodes, the presence vector to indicate that a given node has a copy of the contents.
34. (New) The machine-readable medium of claim 33, wherein said instructions that result in determining that a responding node of the plurality of caching nodes has exclusive ownership of the contents comprises instructions that result in accessing the snoop filter to check the presence vector and the state of the cache line.
35. (New) The machine-readable medium of claim 32, wherein the current status of the cache line is maintained at the responding node, and said instructions that result in determining if the contents have been modified comprises instructions that result in snooping the responding node for a current status of the cache line.
36. (New) The machine-readable medium of claim 32, wherein the contents of the cache line are permanently stored at a home node of the plurality of caching nodes, the machine-readable medium additionally comprising instructions that result in writing the modified contents to the home node if the contents have been modified.
37. (New) The machine-readable medium of claim 32, wherein each of the

plurality of caching nodes implements a Modified, Exclusive, Shared and Invalid (MESI) protocol.

38. (New) A shared memory multiprocessor system comprising:

a plurality of caching nodes, including a requesting node and a responding node; and

a scalability port switch having a snoop filter, the snoop filter having a plurality of caches to maintain information about the state of each cache line at the plurality of caching nodes, the scalability port switch capable of:

in response to a request from the requesting node to access contents of a cache line, determining that the responding node has exclusive ownership of the contents;

determining if a state of the cache line is an ambiguous state, the state of the cache line maintained at the snoop filter; and

if the state is an ambiguous state, resolving the ambiguous state by determining if the contents have been modified, and writing one of the contents and the modified contents to the requesting node.

39. (New) The system of claim 38, wherein the snoop filter additionally maintains a presence vector having one bit for each of the plurality of caching nodes, the presence vector to indicate that a given caching node

of the plurality of caching nodes has a copy of the contents.

40. (New) The system of claim 39, wherein said determining that a responding node has exclusive ownership of the contents comprises accessing the snoop filter to check the presence vector and the state of the cache line.
41. (New) The system of claim 38, wherein the current status of the cache line is maintained at the responding node, and said determining if the contents have been modified comprises snooping the responding node for a current status of the cache line.
42. (New) The system of claim 38, wherein the contents of the cache line are permanently stored at a home node of the plurality of caching nodes, the method additionally comprising writing the modified contents to the home node if the contents have been modified.
43. (New) The system of claim 38, wherein the system implements a Modified, Exclusive, Shared and Invalid (MESI) protocol.